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## BC1和F2设计下利用单标记信息检测QTL的效率

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### Efficiencies of QTL Detection under BC1 and F2 Design byUsing Single Marker Information

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**摘要** 本文采用计算机模拟方法研究了BC 1和F 2设计不同资源群体规模、性状遗传力、QTL效应(QTL方差占加性遗传方差的比例)和标记-QTL间图距下单标记分析对QTL的检测效率。结果表明:当资源群体的规模较大,目标性状的遗传力较高,QTL效应较大,所检测的标记距离QTL的距离较近时,无论是BC1设计还是F2设计,都可获得较高的QTL检测效率。但在其他条件相同时,F2设计对QTL的检出率明显高于BC1设计

**关键词:** QTL检测 BC1设计 F2设计 单标记分析 检测效率

**Abstract:** In this paper, an experiment of quantitative trait loci (QTL) detection in BC 1 and F 2 designs was simulated by computer. The QTL detection efficiencies under different sizes of resource population, trait heritabilities, QTL effect (the ratio of QTL variance to additive genetic variance) and markerQTL map distances were analyzed. The results showed that the detecting power of QTL was higher in BC1 and F2 design in the following situations: larger size of resource population, higher heritability of target trait, larger QTL effect and shorter distance between the detected marker and QTL. However, the QTL detected ratios of F2 design were obviously higher than those of BC1 design under the same condition.

**Keywords:** QTL detection BC 1 design F 2 design single marker analysis detection efficiency

Fund:

QTL detection; BC1 design; F2 design; single marker analysis; detection efficiency

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